```
=> b medline caplus lifesci embase uspatfull biosis
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     0.21       0.21

FILE 'MEDLINE' ENTERED AT 11:23:11 ON 17 AUG 2004

FILE 'CAPLUS' ENTERED AT 11:23:11 ON 17 AUG 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'LIFESCI' ENTERED AT 11:23:11 ON 17 AUG 2004
COPYRIGHT (C) 2004 Cambridge Scientific Abstracts (CSA)

FILE 'EMBASE' ENTERED AT 11:23:11 ON 17 AUG 2004
COPYRIGHT (C) 2004 Elsevier Inc. All rights reserved.

FILE 'USPATFULL' ENTERED AT 11:23:11 ON 17 AUG 2004
CA INDEXING COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'BIOSIS' ENTERED AT 11:23:11 ON 17 AUG 2004
COPYRIGHT (C) 2004 BIOLOGICAL ABSTRACTS INC.(R)

=> s rna and (2()o()methyl)
L1         5485 RNA AND (2(W) O(W) METHYL)

=> s l1 and hairpin
L2         1936 L1 AND HAIRPIN

=> s l2 and py<1997
   2 FILES SEARCHED...
   4 FILES SEARCHED...
L3           41 L2 AND PY<1997

=> dup rem l3
PROCESSING COMPLETED FOR L3
L4            27 DUP REM L3 (14 DUPLICATES REMOVED)

=> d l4 ibib abs tot

L4   ANSWER 1 OF 27  USPATFULL on STN
ACCESSION NUMBER:        2001:220860  USPATFULL
TITLE:                   Enzymatic DNA molecules
INVENTOR(S):             Joyce, Gerald F., Encinitas, CA, United States
                         Breaker, Ronald R., Guilford, CT, United States
PATENT ASSIGNEE(S):      The Scripps Research Institute, La Jolla, CA, United
                         States (U.S. corporation)

                              NUMBER         KIND    DATE
                         ---------------- ------ --------
PATENT INFORMATION:      US 6326174          B1   20011204
                         WO 9617086               19960606            <--
APPLICATION INFO.:       US 1997-849567           19970825  (8)
                         WO 1995-US15580          19951201
                                                  19970825  PCT 371 date
                                                  19970825  PCT 102(e) date
DOCUMENT TYPE:           Utility
FILE SEGMENT:            GRANTED
PRIMARY EXAMINER:        Schwartzman, Robert A.
LEGAL REPRESENTATIVE:    Fitting, Thomas, Holmes, Emily
NUMBER OF CLAIMS:        68
EXEMPLARY CLAIM:         1
NUMBER OF DRAWINGS:      11 Drawing Figure(s); 9 Drawing Page(s)
LINE COUNT:              2703
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB     The present invention discloses deoxyribonucleic acid enzymes--catalytic
       or enzymatic DNA molecules--capable of cleaving nucleic acid sequences
       or molecules, particularly   ***RNA***   , in a site-specific manner, as
       well as compositions including same. Methods of making and using the
       disclosed enzymes and compositions are also disclosed.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
```

ACCESSION NUMBER: 2001:147670 USPATFULL
TITLE: Compositions and methods for treatment of hepatitis C virus-associated diseases
INVENTOR(S): Anderson, Kevin P., Carlsbad, CA, United States
Hanecak, Ronnie C., San Clemente, CA, United States
Hoshiko, Kazuya, Koshi-machi, Japan
Nozaki, Chikateru, Kumamoto, Japan
Nishihara, Tsukasa, Kumamoto, Japan
Nakatake, Hiroshi, Kikuyo-machi, Japan
Hamada, Fukusaburo, Nishigoshi-machi, Japan
Eto, Tatsuo, Ohzu-machi, Japan
Furukawa, Shinichi, Koshi-machi, Japan
PATENT ASSIGNEE(S): Isis Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6284458	B1	20010904	
	WO 9405813		19940317	<--
APPLICATION INFO.:	US 1995-397220		19950309	(8)
	WO 1993-JP1293		19930910	
			19950309	PCT 371 date
			19950309	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1993-87195	19930414

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Wang, Andrew
LEGAL REPRESENTATIVE: Licata & Tyrrell P.C.
NUMBER OF CLAIMS: 6
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 9 Drawing Figure(s); 9 Drawing Page(s)
LINE COUNT: 1208
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense oligonucleotides are provided which are complementary to and hybridizable with at least a portion of HCV ***RNA*** and which are capable of inhibiting the function of the HCV ***RNA*** . These oligonucleotides can be administered to inhibit the activity of Hepatitis C virus in vivo or in vitro. These compounds can be used either prophylactically or therapeutically to reduce the severity of diseases associated with Hepatitis C virus, and for diagnosis and detection of HCV and HCV-associated diseases. Methods of using these compounds are also disclosed.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 3 OF 27 USPATFULL on STN
ACCESSION NUMBER: 2001:142075 USPATFULL
TITLE: High affinity nucleic acid ligands to lectins
INVENTOR(S): Parma, David H, Boulder, CO, United States
Hicke, Brian, Boulder, CO, United States
Bridonneau, Philippe, Boulder, CO, United States
Gold, Larry, Boulder, CO, United States
PATENT ASSIGNEE(S): Gilead Sciences, Inc., Foster City, CA, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6280932	B1	20010828	
	WO 9640703		19961219	<--
APPLICATION INFO.:	US 1997-952793		19971121	(8)
	WO 1996-US9455		19960605	
			19971121	PCT 371 date
			19971121	PCT 102(e) date

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1995-479724, filed on 7 Jun 1995, now patented, Pat. No. US 5780228 Continuation-in-part of Ser. No. US 1995-472256, filed on 7 Jun 1995, now patented, Pat. No. US 6001988 Continuation-in-part of Ser. No. US 1995-472255, filed on 7 Jun 1995, now patented, Pat. No. US 5766853 Continuation-in-part of Ser. No. US 1995-477829, filed on 7 Jun 1995, now abandoned Continuation-in-part of Ser. No. US 1991-714131, filed on 10 Jun 1991, now patented, Pat. No. US 5475096 Continuation-in-part of

abandoned
DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Riley, Jezia
LEGAL REPRESENTATIVE: Swanson & Bratschun, L.L.C.
NUMBER OF CLAIMS: 50
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 24 Drawing Figure(s); 19 Drawing Page(s)
LINE COUNT: 4625
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB This invention discloses high-affinity oligonucleotide ligands to lectins, specifically nucleic acid ligands having the ability to bind to the lectins, wheat germ agglutinin, L-selectin and P-selectin. Also disclosed are the methods for obtaining such ligands.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 4 OF 27 USPATFULL on STN
ACCESSION NUMBER: 2001:136439 USPATFULL
TITLE: Optimized minizymes and miniribozymes and uses thereof
INVENTOR(S): McCall, Maxine J., Putney, Australia
Hendry, Philip, Leichhardt, Australia
Lockett, Trevor, Denistone, Australia
PATENT ASSIGNEE(S): Commonwealth Scientific and Industrial Research Organization, Parkville, Australia (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6277634	B1	20010821	
	WO 9640906		19961219	<--
APPLICATION INFO.:	US 1998-973568		19980518	(8)
	WO 1996-AU343		19960607	
			19980515	PCT 371 date
			19980515	PCT 102(e) date

RELATED APPLN. INFO.: Continuation of Ser. No. US 1995-574396, filed on 18 Dec 1995, now patented, Pat. No. US 6001648 Continuation-in-part of Ser. No. US 1995-488181, filed on 7 Jun 1995, now patented, Pat. No. US 6004806
DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: McGarry, Sean
LEGAL REPRESENTATIVE: White, John P.Cooper & Dunham LLP
NUMBER OF CLAIMS: 46
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 5 Drawing Figure(s); 4 Drawing Page(s)
LINE COUNT: 2590
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB This invention is directed to improved catalytic compounds, minizymes and miniribozymes, capable of hybridizing with a target ***RNA*** to be cleaved. The minizymes and miniribozymes and compositions of the present invention may be used in vitro or in vivo. They may be used as diagnostic or therapeutic agents.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 5 OF 27 USPATFULL on STN
ACCESSION NUMBER: 2000:153836 USPATFULL
TITLE: Nucleic acid ligand complexes
INVENTOR(S): Gold, Larry, Boulder, CO, United States
Schmidt, Paul G, Niwot, CO, United States
Janjic, Nebojsa, Boulder, CO, United States
PATENT ASSIGNEE(S): NeXstar Pharmaceuticals, Inc., Boulder, CO, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6147204		20001114	
	WO 9634876		19961107	<--
APPLICATION INFO.:	US 1997-945604		19971028	(8)
	WO 1996-US6171		19960502	
			19971028	PCT 371 date
			19971028	PCT 102(e) date

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1995-434465, filed on 4 May 1995, now patented, Pat. No. US 6011020 And a continuation-in-part of Ser. No. US 1995-464443, filed

continuation-in-part of Ser. No. US 1991-714131, filed on 10 Jun 1991, now patented, Pat. No. US 5475096 which is a continuation-in-part of Ser. No. US 1990-536428, filed on 11 Jun 1990, now abandoned
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Zitomer, Stephanie
LEGAL REPRESENTATIVE: Swanson & Bratschun, L.L.C.
NUMBER OF CLAIMS: 39
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 36 Drawing Figure(s); 34 Drawing Page(s)
LINE COUNT: 2756
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB This invention discloses a method for preparing a therapeutic or diagnostic complex comprised of a nucleic acid ligand and a lipophilic compound or non-immunogenic, high molecular weight compound by identifying a nucleic acid ligand by SELEX methodology and associating the nucleic acid ligand with a lipophilic compound or a non-immunogenic, high molecular weight compound. The invention further discloses complexes comprising one or more nucleic acid ligands in association with a lipophilic compound or non-immunogenic, high molecular weight compound.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 6 OF 27 USPATFULL on STN
ACCESSION NUMBER: 2000:125209 USPATFULL
TITLE: Oligomeric compounds having nitrogen-containing linkages
INVENTOR(S): Cook, Phillip Dan, Vista, CA, United States
Sanghvi, Yogesh S., San Marcos, CA, United States
Kung, Pei Pei, Carlsbad, CA, United States
PATENT ASSIGNEE(S): ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6121433		20000919	
	WO 9518623		19950713	<--
APPLICATION INFO.:	US 1996-669300		19960808	(8)
	WO 1995-US350		19950111	
			19960808	PCT 371 date
			19960808	PCT 102(e) date

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1994-180124, filed on 11 Jan 1994, now patented, Pat. No. US 5783682 And a continuation-in-part of Ser. No. US 1993-39979, filed on 30 Mar 1993, now abandoned And a continuation-in-part of Ser. No. US 1993-39846, filed on 30 Mar 1993, now abandoned And a continuation-in-part of Ser. No. US 1993-40933, filed on 31 Mar 1993, now abandoned And a continuation-in-part of Ser. No. US 1993-40903, filed on 31 Mar 1993, now patented, Pat. No. US 5386023 And a continuation-in-part of Ser. No. US 1993-40526, filed on 31 Mar 1993, now patented, Pat. No. US 5489677 which is a continuation-in-part of Ser. No. WO 1992-US4294, filed on 21 May 1992 And a continuation-in-part of Ser. No. US 1992-903160, filed on 24 Jun 1992, now abandoned which is a continuation-in-part of Ser. No. US 1991-703619, filed on 21 May 1991, now patented, Pat. No. US 5378825 which is a continuation-in-part of Ser. No. US 1990-566836, filed on 13 Aug 1990, now patented, Pat. No. US 5223618 And a continuation-in-part of Ser. No. US 1990-558663, filed on 27 Jul 1990, now patented, Pat. No. US 5138045
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Marschel, Ardin H.
ASSISTANT EXAMINER: Riley, Jezia
LEGAL REPRESENTATIVE: Woodcock Washburn Kurtz Mackiewicz & Norris LLP
NUMBER OF CLAIMS: 13
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 14 Drawing Figure(s); 14 Drawing Page(s)
LINE COUNT: 3461
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Novel compounds and libraries of compounds based on nitrogen atoms that

functional groups, that are attached to the nitrogen atoms, to the spanner groups or to both the nitrogen atoms and the spanner groups to render the compounds and libraries of such compounds with diverse properties.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 7 OF 27 USPATFULL on STN
ACCESSION NUMBER: 2000:117501 USPATFULL
TITLE: Systematic evolution of ligands by exponential enrichment: tissue selex
INVENTOR(S): Jensen, Kirk B, New York, NY, United States
Chen, Hang, San Francisco, CA, United States
Morris, Kevin N., Goldegg, Austria
Stephens, Andrew, Boulder, CO, United States
Gold, Larry, Boulder, CO, United States
PATENT ASSIGNEE(S): NeXstar Pharmaceuticals, Inc., Boulder, CO, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6114120		20000905	
	WO 9634875		19961107	<--
APPLICATION INFO.:	US 1997-945909		19971028	(8)
	WO 1996-US6060		19960501	
			19971028	PCT 371 date
			19971028	PCT 102(e) date

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1995-434425, filed on 3 May 1995, now patented, Pat. No. US 5789157 And a continuation-in-part of Ser. No. US 1995-437667, filed on 3 May 1995, now patented, Pat. No. US 5864026 And a continuation-in-part of Ser. No. US 1995-434001, filed on 3 May 1995, now patented, Pat. No. US 5712375 And a continuation-in-part of Ser. No. US 1995-433585, filed on 3 May 1995, now patented, Pat. No. US 5763566
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Zitomer, Stephanie
LEGAL REPRESENTATIVE: Swanson & Bratschun LLC
NUMBER OF CLAIMS: 10
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 7 Drawing Figure(s); 7 Drawing Page(s)
LINE COUNT: 3551
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A new class of nucleic acid compounds, referred to as nucleic acid ligands, have been shown to exist that have a specific binding affinity for three dimensional molecular targets, including cell surface macromolecules. The nucleic acid ligands are identified by the method of the invention referred to as the Systematic Evolution of Ligands by EXponential enrichment (SELEX), wherein a candidate mixture of nucleic acids are iteratively enriched and the high affinity nucleic acids are amplified for further partitioning. The high affinity nucleic acid ligands are useful in capturing target cells.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 8 OF 27 USPATFULL on STN
ACCESSION NUMBER: 2000:109986 USPATFULL
TITLE: Nitrogenous macrocyclic compounds
INVENTOR(S): Cook, Phillip Dan, Escondido, CA, United States
An, Haoyun, Encinitas, CA, United States
Guinosso, Charles J., Vista, CA, United States
Kung, Pei-Pei, Leucadia, CA, United States
Fraser, Allister S., San Marcos, CA, United States
PATENT ASSIGNEE(S): Isis Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6107482		20000822	
	WO 9630377		19961003	<--
APPLICATION INFO.:	US 1997-913664		19970919	(8)
	WO 1996-US4215		19960327	
			19970919	PCT 371 date
			19970919	PCT 102(e) date

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1995-461728, filed

No. US 1995-410703, filed on 27 Mar 1995
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Raymond, Richard L.
LEGAL REPRESENTATIVE: Woodcock Washburn Kurtz Mackiewicz & Norris LLP
NUMBER OF CLAIMS: 6
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 15 Drawing Figure(s); 15 Drawing Page(s)
LINE COUNT: 4599
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Novel macrocyclic compounds are constructed to include large cyclic structures that are interrupted by at least one ring system. Each interrupting ring system includes two bridgehead atoms. Bridgehead atoms are bonded to one or more bridges that interconnect one or more ring systems thereby forming a large cyclic structure. Located in each bridge are two or more nitrogenous moieties that are derivatized with chemical functional groups. The ring systems can include further nitrogenous moieties, either as ring atoms or on pendant groups attached to the ring. These can also be derivatized with chemical functional groups. The totality of the chemical functional groups imparts certain conformational and other properties to the macrocyclic compounds. In accordance with certain embodiments of the invention, libraries of such macrocyclic compounds are prepared utilizing permutations and combinations of the chemical functional groups and the nitrogenous moieties to build complexity into the library.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 9 OF 27 USPATFULL on STN
ACCESSION NUMBER: 2000:12593 USPATFULL
TITLE: Nucleic acid ligands that bind to and inhibit DNA polymerases
INVENTOR(S): Gold, Larry, Boulder, CO, United States
Javasena, Sumedha, Boulder, CO, United States
PATENT ASSIGNEE(S): NeXstar Pharmaceuticals, Inc., Boulder, CO, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6020130		20000201	
	WO 9641010		19961219	<--
APPLICATION INFO.:	US 1997-945734		19971028	(8)
	WO 1996-US9451		19960605	
			19971028	PCT 371 date
			19971028	PCT 102(e) date

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1995-487426, filed on 7 Jun 1995, now patented, Pat. No. US 5763173 Ser. No. Ser. No. US 1995-487720, filed on 7 Jun 1995, now patented, Pat. No. US 5874557 And Ser. No. US 1995-484557, filed on 7 Jun 1995, now patented, Pat. No. US 5693502
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Zitomer, Stephanie
LEGAL REPRESENTATIVE: Swanson & Bratschun LLC
NUMBER OF CLAIMS: 17
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 35 Drawing Figure(s); 17 Drawing Page(s)
LINE COUNT: 2374
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB This invention discloses high-affinity oligonucleotide ligands to the thermostable Taq polymerase and Tth polymerase. Specifically, this invention discloses DNA ligands having the ability to bind to the Taq and Tth polymerases and the methods for obtaining such ligands. The ligands are capable of inhibiting polymerases at ambient temperatures.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 10 OF 27 USPATFULL on STN
ACCESSION NUMBER: 1999:37288 USPATFULL
TITLE: Phosphate linked oligomers
INVENTOR(S): Cook, Phillip Dan, Vista, CA, United States
Acevedo, Oscar L., San Diego, CA, United States
Davis, Peter W., Carlsbad, CA, United States
Ecker, David J., Encinitas, CA, United States
Hebert, Normand, Cardiff, CA, United States

(U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5886177		19990323	
	WO 9518820		19950713	<--
APPLICATION INFO.:	US 1996-669506		19960808	(8)
	WO 1995-US449		19950111	
			19960808	PCT 371 date
			19960808	PCT 102(e) date

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1994-179970, filed on 11 Jan 1994
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Marschel, Ardin H.
LEGAL REPRESENTATIVE: Woodcock Washburn Kurtz Mackiewicz & Norris, LLP
NUMBER OF CLAIMS: 22
EXEMPLARY CLAIM: 2
NUMBER OF DRAWINGS: 4 Drawing Figure(s); 2 Drawing Page(s)
LINE COUNT: 3915
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Novel ethylene glycol compounds bearing various functional groups are used to prepare oligomeric structures. The ethylene glycol monomers can be joined via standard phosphate linkages including phosphorothioate, phosphodiester, and phosphoramidate linkages. Useful functional groups include nucleobases as well as polar groups, hydrophobic groups, ionic groups, aromatic groups and/or groups that participate in hydrogen-bonding.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 11 OF 27 USPATFULL on STN
ACCESSION NUMBER: 1998:14925 USPATFULL
TITLE: Phosphoramidate and phosphorothiomidate oligomeric compounds
INVENTOR(S): Cook, Phillip Dan, Vista, CA, United States
Acevedo, Oscar, San Diego, CA, United States
Hebert, Normand, Cardiff, CA, United States
PATENT ASSIGNEE(S): ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5717083		19980210	
	WO 9523160		19950831	<--
APPLICATION INFO.:	US 1996-693112		19960819	(8)
	WO 1995-US2267		19950223	
			19960819	PCT 371 date
			19960819	PCT 102(e) date

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1994-200638, filed on 23 Feb 1994, now patented, Pat. No. US 5637684
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Guzo, David
LEGAL REPRESENTATIVE: Woodcock Washburn Kurtz Mackiewicz & Norris LLP
NUMBER OF CLAIMS: 40
EXEMPLARY CLAIM: 1
LINE COUNT: 2743
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Compounds are provided having structure (I), wherein the L groups are backbone segments, the Y and T groups are functional groups for interacting with target molecules of interest, the X groups are oxygen or sulfur and the E groups are H, conjugate groups or intermediate groups used during the synthesis of the compounds and wherein the compounds are prepared using H phosphonate type chemistry wherein the functional groups are added during an oxidation step or during a coupling step. ##STR1##

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 12 OF 27 USPATFULL on STN
ACCESSION NUMBER: 1998:12145 USPATFULL
TITLE: Pyrrolidine-containing monomers and oligomers
INVENTOR(S): Acevedo, Oscar L., San Diego, CA, United States
Hebert, Normand, Cardiff, CA, United States
PATENT ASSIGNEE(S): ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5714606		19980203	
	WO 9518792		19950713	<--
APPLICATION INFO.:	US 1996-669505		19960815	(8)
	WO 1995-US356		19950111	
			19960815	PCT 371 date
			19960815	PCT 102(e) date

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1994-180134, filed on 11 Jan 1994, now patented, Pat. No. US 5519134
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: McKane, Joseph
LEGAL REPRESENTATIVE: Woodcock Washburn Kurtz Mackiewicz & Norris, LLP
NUMBER OF CLAIMS: 26
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 1 Drawing Figure(s); 1 Drawing Page(s)
LINE COUNT: 2992
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention relates to pyrrolidine monomeric units and to oligomers which are joined via phosphate linkages, including phosphorothioate, phosphodiester and phosphoramidate linkages.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 13 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1997:231448 CAPLUS
DOCUMENT NUMBER: 126:288105
TITLE: Ribozymes cleaving interleukin-5 mRNA for treatment and diagnosis of asthma and other inflammatory disorders
INVENTOR(S): Sullivan, Sean; Draper, Kenneth G.; McSwiggen, James; Stinchcomb, Dan T.
PATENT ASSIGNEE(S): Ribozyme Pharmaceuticals, Inc., USA
SOURCE: U.S., 145 pp., Cont.-in-part of U.S. Ser. No. 989,849, abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 123
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5616488	A	19970401	US 1994-319492	19941007
EP 786522	A2	19970730	EP 1997-101534	19930702
EP 786522	A3	19970827		
R: AT, CH, DE, ES, FR, GB, IT, LI, SE				
EP 1251170	A2	20021023	EP 2002-5642	19930702
EP 1251170	A3	20021030		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE				
CA 2183992	AA	19950831	CA 1995-2183992	19950223 <--
WO 9523225	A2	19950831	WO 1995-IB156	19950223 <--
WO 9523225	A3	19960201		
W: AU, CA, JP, KR, MX				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 746614	A1	19961211	EP 1995-909920	19950223 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
JP 09509323	T2	19970922	JP 1995-522236	19950223
EP 1260586	A2	20021127	EP 2002-13004	19950223
EP 1260586	A3	20040428		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE				
US 5616490	A	19970401	US 1995-434503	19950504
AU 9851819	A1	19980611	AU 1998-51819	19980112
AU 729657	B2	20010208		
AU 9939188	A1	19990916	AU 1999-39188	19990713
AU 9947567	A1	19991104	AU 1999-47567	19990913
AU 737017	B2	20010809		
AU 769175	B2	20040115	AU 2000-56616	20000911

PRIORITY APPLN. INFO.:

US 1992-989849	B2	19921207
US 1993-8895	B2	19930119
US 1992-916763	A	19920717
US 1992-987132	A	19921207
US 1992-989848	A	19921207
EP 1993-918144	A3	19930702

US 1994-218934	A	19940329
US 1994-222795	A	19940404
US 1994-224483	A	19940407
US 1994-227958	A	19940415
US 1994-228041	A	19940415
US 1994-245736	A	19940518
US 1994-271280	A	19940706
US 1994-291932	A	19940815
US 1994-291433	A	19940816
US 1994-292620	A	19940817
US 1994-293520	A	19940819
US 1994-300000	A	19940902
US 1994-303039	A	19940908
US 1994-311486	A	19940923
US 1994-311749	A	19940923
US 1994-314397	A	19940928
US 1994-316771	A	19941003
US 1994-319492	A	19941007
US 1994-321993	A	19941011
US 1994-334847		19941104
US 1994-337608		19941110
US 1994-345516		19941128
US 1994-357577		19941216
US 1994-363233		19941223
US 1995-380734		19950130
EP 1995-909920	A3	19950223
WO 1995-IB156	W	19950223
AU 1995-26422	A3	19950518
US 1995-475460	A	19950607
US 1995-483715	A	19950607
US 1995-484607	A	19950607
US 1996-623891	A	19960325
AU 1996-61744	A3	19960603
AU 1996-76662	A3	19961025

AB Ribozymes that cleave the mRNA of interleukin 5 are described for use in the therapeutic control of interleukin levels in the treatment of asthma and other inflammatory diseases. Interleukin 5 levels are shown to be raised in bronchoalveolar lavage and lung biopsies of asthma patients, implying a role for helper T-cells in the inflammatory response.

L4 ANSWER 14 OF 27 USPATFULL on STN
ACCESSION NUMBER: 96:111555 USPATFULL
TITLE: Optimized catalytic DNA-cleaving ribozymes
INVENTOR(S): Joyce, Gerald F., Encinitas, CA, United States
PATENT ASSIGNEE(S): The Scripps Research Institute, La Jolla, CA, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5580967		19961203	<--
APPLICATION INFO.:	US 1994-242402		19940513	(8)

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: LeGuyader, John L.
ASSISTANT EXAMINER: Larson, Thomas G.
LEGAL REPRESENTATIVE: Logan, April C.
NUMBER OF CLAIMS: 8
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 15 Drawing Figure(s); 8 Drawing Page(s)
LINE COUNT: 3698
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention discloses nucleic acid enzymes capable of cleaving nucleic acid molecules, including single-stranded DNA, in a site-specific manner under physiologic conditions, as well as compositions including same. The present invention also discloses methods of making and using the disclosed enzymes and compositions.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 15 OF 27 USPATFULL on STN
ACCESSION NUMBER: 96:106381 USPATFULL
TITLE: Antisense oligonucleotide inhibition of the RAS gene
INVENTOR(S): Monia, Brett P., Carlsbad, CA, United States
Freier, Susan M., San Diego, CA, United States
Ecker, David J., Leucadia, CA, United States
PATENT ASSIGNEE(S): Isis Pharmaceuticals Inc., Carlsbad, CA, United States

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5576208		19961119	<--
APPLICATION INFO.:	US 1994-297248		19940826 (8)	

RELATED APPLN. INFO.: Continuation of Ser. No. US 1993-7996, filed on 21 Jan 1993, now abandoned which is a continuation-in-part of Ser. No. US 1991-715196, filed on 14 Jun 1991, now abandoned And a continuation-in-part of Ser. No. US 1992-958134, filed on 5 Oct 1992, now abandoned
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Elliott, George C.
LEGAL REPRESENTATIVE: Law Offices of Jane Massey Licata
NUMBER OF CLAIMS: 4
EXEMPLARY CLAIM: 1,3
NUMBER OF DRAWINGS: 26 Drawing Figure(s); 21 Drawing Page(s)
LINE COUNT: 1666
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Compositions and methods are provided for the modulation of expression of the human ras gene in both the normal and activated forms. Oligonucleotides are provided which are specifically hybridizable with ***RNA*** or DNA deriving from the human ras gene, having nucleotide units sufficient in identity and number to effect such specific hybridization. Oligonucleotides specifically hybridizable with a translation initiation site or with the codon-12 mutation of activated ras are provided. Such oligonucleotides can be used for diagnostics as well as for research purposes. Methods are also disclosed for modulating ras gene expression in cells and tissues using the oligonucleotides provided, and for specific modulation of expression of the activated ras gene. Methods for diagnosis, detection and treatment of conditions arising from the activation of the H-ras gene are also disclosed.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 16 OF 27 USPATFULL on STN
ACCESSION NUMBER: 96:97025 USPATFULL
TITLE: Texaphyrins and uses thereof
INVENTOR(S): Magda, Darren, Cupertino, CA, United States
Sessler, Jonathan L., Austin, TX, United States
Iverson, Brent, Austin, TX, United States
Jansen, Petra L., Austin, TX, United States
Wright, Meredith, San Jose, CA, United States
Mody, Tarak D., Sunnyvale, CA, United States
Hemmi, Gregory W., Sunnyvale, CA, United States
PATENT ASSIGNEE(S): University of Texas, Austin, TX, United States (U.S. corporation)
Pharmacyclics, Inc., Sunnyvale, CA, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5567687		19961022	<--
APPLICATION INFO.:	US 1994-310501		19940921 (8)	

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1993-112872, filed on 25 Aug 1993, now patented, Pat. No. US 5451576 And Ser. No. US 1994-227370, filed on 14 Apr 1994 which is a continuation-in-part of Ser. No. US 1993-75123, filed on 9 Jun 1993, now abandoned which is a continuation-in-part of Ser. No. US 1992-822964, filed on 21 Jan 1992, now patented, Pat. No. US 5252720, issued on 12 Oct 1993 which is a continuation-in-part of Ser. No. US 1991-771393, filed on 30 Sep 1991, now abandoned which is a continuation-in-part of Ser. No. US 1990-539975, filed on 18 Jun 1990, now patented, Pat. No. US 5162509, issued on 10 Nov 1992 which is a division of Ser. No. US 1989-320293, filed on 6 Mar 1989, now patented, Pat. No. US 4935498, issued on 19 Jun 1990 , said Ser. No. US -112872 which is a division of Ser. No. US -822964
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Raymond, Richard L.
LEGAL REPRESENTATIVE: Arnold, White & Durkee
NUMBER OF CLAIMS: 13
EXEMPLARY CLAIM: 1

LINE COUNT: 2828
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A texaphyrin having substituents containing ethoxy groups, methods for using texaphyrins in photodynamic therapy, and cleavage of a polymer of deoxyribonucleic acid are disclosed. The in vivo treatment of tumors and atheroma is demonstrated using Lu(III)texaphyrin complexes. A preferred method of use is the site-specific cleavage of a polymer of deoxyribonucleic acid and a preferred texaphyrin is a derivatized texaphyrin having binding specificity, in particular, a texaphyrin covalently coupled to a site-directing molecule, preferably an oligonucleotide.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 17 OF 27 USPATFULL on STN
ACCESSION NUMBER: 96:43784 USPATFULL
TITLE: Pyrrolidine-containing monomers and oligomers
INVENTOR(S): Acevedo, Oscar L., San Diego, CA, United States
Hebert, Normand, San Marcos, CA, United States
PATENT ASSIGNEE(S): Isis Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5519134		19960521	<--
APPLICATION INFO.:	US 1994-180134		19940111	(8)

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: McKane, Joseph K.
LEGAL REPRESENTATIVE: Woodcock Washburn Kurtz Mackiewicz & Norris
NUMBER OF CLAIMS: 16
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 1 Drawing Figure(s); 1 Drawing Page(s)
LINE COUNT: 1864
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Novel pyrrolidine monomers bearing various functional groups are used to prepare oligomeric structures. The pyrrolidine monomers can be joined via standard phosphate linkages including phosphodiester and phosphorothioate linkages. Useful functional groups include nucleobases as well as polar groups, hydrophobic groups, ionic groups, aromatic groups and/or groups that participate in hydrogen-bonding.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 18 OF 27 USPATFULL on STN
ACCESSION NUMBER: 96:41104 USPATFULL
TITLE: Enzymatic synthesis of repeat regions of oligonucleotides
INVENTOR(S): Hyman, Edward D., 2100 Sawmill Rd. Apt. 4-103, River Ridge, LA, United States 70123

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5516664		19960514	<--
APPLICATION INFO.:	US 1993-161224		19931202	(8)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1993-100671, filed on 30 Jul 1993 which is a continuation-in-part of Ser. No. US 1992-995791, filed on 23 Dec 1992, now patented, Pat. No. US 5436143
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Naff, David M.
ASSISTANT EXAMINER: Prats, Francisco C.
LEGAL REPRESENTATIVE: Oppedahl & Larson
NUMBER OF CLAIMS: 21
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 5 Drawing Figure(s); 5 Drawing Page(s)
LINE COUNT: 1099
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Enzymatic synthesis of a repeat region of an oligonucleotide may be performed by the steps of: (a) combining a primer and a blocked nucleotide in the presence of a chain extending enzyme whereby a primer-blocked nucleotide product is formed containing the blocked nucleotide coupled to the primer at its 3'-end; (b) removing the blocking group from the 3'-end of the primer-blocked nucleotide product using a 3'-phosphatase enzyme substantially without removing the

nucleotide; and (c) repeating the cycle of steps (a) and (b), using the primer-nucleotide product of step (b) as the primer for step (a) in the next cycle, for sufficient cycles to form the oligonucleotide product. These cycles are performed preferably in a single vessel without intermediate purification of oligonucleotide product.

Also disclosed is a process for synthesizing an oligonucleotide having a defined sequence including at least one repeat region and one non-repeating region, wherein at least one non-repeating region is synthesized by reaction cycles using the steps of extending a primer with a 3'-blocked nucleotide, inactivating unreacted 3'-blocked nucleotide, and removing the blocking group from the extended primer. The disclosed processes may be used to synthesize repeat regions of oligoribonucleotides.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 19 OF 27 USPATFULL on STN

ACCESSION NUMBER:	96:38773 USPATFULL
TITLE:	Stem-loop oligonucleotides containing parallel and antiparallel binding domains
INVENTOR(S):	Kool, Eric T., Rochester, NY, United States
PATENT ASSIGNEE(S):	Research Corporation Technologies, Inc., Tucson, AZ, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5514546		19960507	<--
APPLICATION INFO.:	US 1993-115497		19930901	(8)

DOCUMENT TYPE:	Utility
FILE SEGMENT:	Granted
PRIMARY EXAMINER:	Jones, W. Gary
ASSISTANT EXAMINER:	Myers, Carla
LEGAL REPRESENTATIVE:	Scully, Scott, Murphy & Presser
NUMBER OF CLAIMS:	9
EXEMPLARY CLAIM:	1
NUMBER OF DRAWINGS:	8 Drawing Figure(s); 8 Drawing Page(s)
LINE COUNT:	2331

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention provides stem-loop oligonucleotides containing a double-stranded stem domain of at least about 2 base pairs and a single-stranded loop domain. The loop domains of the present oligonucleotides include at least one parallel binding (P) domain separated by at least about 3 nucleotides from a corresponding anti-parallel binding (AP) domain. Each P and corresponding AP domain of the present oligonucleotides can bind detectably to one strand of a defined nucleic acid target wherein the P domain binds in a parallel manner to the target and the corresponding AP domain binds in an anti-parallel manner to the target. The present stem-loop oligonucleotides can bind to both single-stranded and double-stranded target nucleic acids. The present invention also provides methods of using these oligonucleotides as well as kits and pharmaceutical compositions containing these oligonucleotides.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 20 OF 27 USPATFULL on STN

ACCESSION NUMBER:	96:36439 USPATFULL
TITLE:	Inhibiting ***RNA*** expression by forming a pseudo-half-knot ***RNA*** at the target's
INVENTOR(S):	Ecker, David, Leucadia, CA, United States
PATENT ASSIGNEE(S):	ISIS Pharmaceuticals, Inc., Carlsbad, GA, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5512438		19960430	<--
APPLICATION INFO.:	US 1994-176314		19940103	(8)

RELATED APPLN. INFO.:	Continuation of Ser. No. US 1992-916764, filed on 20 Jul 1992, now abandoned
DOCUMENT TYPE:	Utility
FILE SEGMENT:	Granted
PRIMARY EXAMINER:	Jones, W. Gary
ASSISTANT EXAMINER:	Tran, Paul B.
LEGAL REPRESENTATIVE:	Woodcock Washburn Kurtz MacKiewicz & Norris
NUMBER OF CLAIMS:	9

NUMBER OF DRAWINGS: 18 Drawing Figure(s); 8 Drawing Page(s)
LINE COUNT: 908
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Compositions and methods for modulating the activity of ***RNA*** are provided. Oligonucleotides are hybridized with an ***RNA*** structure to form a stable heteroduplex so that the ***RNA*** is no longer recognized by its regulatory protein after oligonucleotide binding. Reactive moieties can be tethered to the oligonucleotide that enhance its activity. Antisense oligonucleotides directed against HIV TAR are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 21 OF 27 USPATFULL on STN
ACCESSION NUMBER: 96:19211 USPATFULL
TITLE: Nucleic acid ligands to HIV-RT and HIV-1 rev
INVENTOR(S): Gold, Larry, Boulder, CO, United States
Tuerk, Craig, Morehead, KY, United States
PATENT ASSIGNEE(S): NeXstar Pharmaceuticals, Inc., Boulder, CO, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5496938		19960305	<--
APPLICATION INFO.:	US 1992-964624		19921021 (7)	

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1991-714131, filed on 10 Jun 1991 And a continuation-in-part of Ser. No. US 1990-536428, filed on 11 Jun 1990, now abandoned
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Zitomer, Stephanie W.
LEGAL REPRESENTATIVE: Swanson & Bratschun
NUMBER OF CLAIMS: 10
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 44 Drawing Figure(s); 34 Drawing Page(s)
LINE COUNT: 2438
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Methods for the identification and production of improved nucleic acid ligands are based on the SELEX process. Nucleic acid ligands to HIV-RT and HIV-1 Rev are identified according to the methods described herein.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 22 OF 27 MEDLINE on STN DUPLICATE 1
ACCESSION NUMBER: 96196016 MEDLINE
DOCUMENT NUMBER: PubMed ID: 8608452
TITLE: RNase H cleavage for processing of in vitro transcribed ***RNA*** for NMR studies and ***RNA*** ligation.
AUTHOR: Lapham J; Crothers D M
CORPORATE SOURCE: Department of Chemistry, Yale University, New Haven, Connecticut 06511, USA.
CONTRACT NUMBER: GM-21966 (NIGMS)
SOURCE: RNA (New York, N.Y.), ***(1996 Mar)*** 2 (3) 289-96.
Journal code: 9509184. ISSN: 1355-8382.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199605
ENTRY DATE: Entered STN: 19960605
Last Updated on STN: 19990129
Entered Medline: 19960528
AB Large quantities of ***RNA*** for study by NMR and X-ray crystallography can be produced by transcription reactions in vitro using T7 bacteriophage ***RNA*** polymerase. A limitation on producing ***RNA*** with this polymerase has been the strong dependence of the yield of the transcription reaction on the sequence at the 5' end of the ***RNA*** produced. We report a procedure for obtaining large quantities of enzymatically synthesized ***RNA*** from T7 ***RNA*** polymerase that has no dependence on the 5' end sequence of the target ***RNA*** . Ribonuclease H has been shown previously (Inoue H, Hayase Y, Iwai S, Ohtsuka E, 1987, FEBS Lett 215:327-330) to cleave ***RNA*** site specifically using ***2*** '- ***O*** - ***methyl*** ***RNA*** /DNA chimeras to direct the cleavage site. We show that ***2*** '- ***O*** - ***methyl*** ***RNA*** nucleotides on the 5'-side of the DNA nucleotides in the chimera are not essential for

the same ***2*** '- ***O*** - ***methyl*** chimera may be used to process any ***RNA*** sequence. We have adapted this reaction to the cleavage of NMR-scale quantities of ***RNA*** at high yield. ***RNA*** is synthesized using T7 ***RNA*** polymerase with a 15-nt high-yielding leader sequence at the 5' end, and then this sequence is cleaved off with the RNase H cleavage reaction. The cleaved ***RNA*** has 3'-hydroxyl and 5'-phosphate ends, so that the products can be used directly as substrates for ligation by T4 DNA ligase. We show that the cleavage reaction occurs efficiently in solution and on a solid streptavidin/agarose matrix. We report an example in which we are able to improve transcription yield by more than five-fold using this technique in the synthesis of a 15N isotopically labeled ***hairpin*** found in the Crithidia fasciculata spliced leader ***RNA*** . We are able to obtain a 0.5-mM NMR sample from this inherently poorly transcribing sequence, while minimizing the amount of isotopically labeled rNTPs used to produce it. The NMR spectroscopic results are consistent with the predicted ***RNA*** secondary structure.

L4 ANSWER 23 OF 27 MEDLINE on STN DUPLICATE 2
ACCESSION NUMBER: 1998044723 MEDLINE
DOCUMENT NUMBER: PubMed ID: 9383475
TITLE: Nuclease-resistant nucleic acid ligands to vascular permeability factor/vascular endothelial growth factor.
AUTHOR: Green L S; Jellinek D; Bell C; Beebe L A; Feistner B D; Gill S C; Jucker F M; Janjic N
CORPORATE SOURCE: NeXstar Pharmaceuticals, Boulder, Colorado 80301, USA.
SOURCE: Chemistry & biology, ***(1995 Oct)*** 2 (10) 683-95. Journal code: 9500160. ISSN: 1074-5521.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199801
ENTRY DATE: Entered STN: 19980129
Last Updated on STN: 19980129
Entered Medline: 19980115
AB BACKGROUND: Vascular permeability factor/vascular endothelial growth factor (VPF/VEGF) is a potent inducer of new blood vessel growth (angiogenesis) that contributes to the pathology of many angiogenesis-associated disease states such as psoriasis, rheumatoid arthritis and cancer. Few molecular entities capable of binding to VPF/VEGF with high affinity and specificity have been described to date. RESULTS: Nuclease-resistant 2'-amino-2'-deoxypyrimidine nucleotide ***RNA*** (2'-aminopyrimidine ***RNA***) ligands that bind to VPF/VEGF with high affinity have been identified by iterative rounds of affinity-selection/amplification from two independent random libraries. The sequence information that confers high affinity binding to VPF/VEGF is contained in a contiguous stretch of 24 nucleotides, 5'-CCCUGAUGGUAGACGCCGGGGUG-3' (2'-aminopyrimidine nucleotides are designated with italic letters). Of the 14 ribopurines in this minimal ligand, 10 can be substituted with the corresponding 2'-O-methylpurine nucleotides without a reduction in binding affinity to VPF/VEGF. In fact, the ***2*** '- ***O*** - ***methyl*** substitution at permissive positions leads to a approximately 17-fold improvement in the binding affinity to VPF/VEGF. The higher affinity results from the reduction in the dissociation rate constant of the ***2*** '- ***O*** - ***methyl*** -substituted ***RNA*** ligand from the protein compared to the unsubstituted ligand. The ***2*** '- ***O*** - ***methyl*** -substituted minimal ligand, which folds into a bulged ***hairpin*** motif, is also more thermally stable than the unsubstituted ligand. Nuclease resistance of the ligand is further improved by the ***2*** '- ***O*** - ***methyl*** substitutions and the addition of short phosphorothioate caps to the 3'- and 5'-ends. CONCLUSIONS: We have used the SELEX (systematic evolution of ligands by exponential enrichment) process in conjunction with post-SELEX modifications to define a highly nuclease-resistant oligonucleotide that binds to VPF/VEGF with high affinity and specificity.

L4 ANSWER 24 OF 27 MEDLINE on STN DUPLICATE 3
ACCESSION NUMBER: 96113282 MEDLINE
DOCUMENT NUMBER: PubMed ID: 8785472
TITLE: 4'-Thio- ***RNA*** : synthesis of mixed base 4'-thio-oligoribonucleotides, nuclease resistance, and base pairing properties with complementary single and double strand.
AUTHOR: Leydier C; Bellon L; Barascut J L; Morvan F; Rayner B;

CORPORATE SOURCE: Laboratoire de Chimie Bio-Organique, URA 488, CNRS, Universite de Montpellier II, France.
SOURCE: Antisense research and development, ***(1995 Fall)*** 5 (3) 167-74.
Journal code: 9110698. ISSN: 1050-5261.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199609
ENTRY DATE: Entered STN: 19961008
Last Updated on STN: 19961008
Entered Medline: 19960926

AB 4'-Thio-beta-D-oligoribonucleotides (12 mer and 16 mer) containing a mixed base sequence were synthesized via the phosphoramidite solid support approach. These ***RNA*** analogs showed very good nuclease resistance as compared with wild-type ***RNA*** . Furthermore, 4'-thio-beta-D-oligoribonucleotides were shown to hybridize with a complementary DNA or ***RNA*** strand to form a duplex or with a DNA ***hairpin*** to form a triple helix. 4'-Thio- ***RNA*** binds more tightly to its complementary ***RNA*** strand than to its complementary DNA strand. A 4'-thio- ***RNA*** : ***RNA*** duplex is as stable as a ***2*** '- ***O*** - ***methyl*** - ***RNA*** : ***RNA*** duplex. 4'-Thio- ***RNA*** , however, forms a 4'-thio- ***RNA*** :DNA:DNA triplex with a stability similar to the corresponding triplex with all wild-type DNA.

L4 ANSWER 25 OF 27 MEDLINE on STN DUPLICATE 4
ACCESSION NUMBER: 93374933 MEDLINE
DOCUMENT NUMBER: PubMed ID: 7690032
TITLE: Four ribose 2'-hydroxyl groups essential for catalytic function of the ***hairpin*** ribozyme.
AUTHOR: Chowrira B M; Berzal-Herranz A; Keller C F; Burke J M
CORPORATE SOURCE: Markey Center for Molecular Genetics, Department of Microbiology and Molecular Genetics, University of Vermont, Burlington 05405.
SOURCE: Journal of biological chemistry, ***(1993 Sep 15)*** 268 (26) 19458-62.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199310
ENTRY DATE: Entered STN: 19931022
Last Updated on STN: 19980206
Entered Medline: 19931007

AB The ***hairpin*** ribozyme catalyzes site-specific cleavage of an ***RNA*** substrate using a magnesium-dependent transphosphorylation mechanism. Here, we describe experiments designed to test the importance of ribose 2'-hydroxyl groups for ribozyme function. Ribozymes for this work were synthesized in two segments using solid-phase ***RNA*** phosphoramidite chemistry. 2'-Deoxyribonucleotides were systematically introduced at each of the 50 positions within the ribozyme, and the catalytic activity of the resulting mixed ***RNA*** -DNA polymers was measured. Deletion of the 2'-hydroxyl group at each of four sites (A10, G11, A24, and C25) was found to result in severe inhibition of cleavage activity (kcat/KM decreased by 100- to 1000-fold), although KM measurements and mobility-shift assays showed that substrate binding was not affected. Identical results were obtained upon substitution of these ribonucleotides with ***2*** '- ***O*** - ***methyl*** derivatives. Inhibition by 2'-modified sugars at G11 or A24 was rescued by increased Mg2+ concentrations, suggesting that these 2'-hydroxyls may function in magnesium binding. Our results demonstrate that the 2'-hydroxyl groups at A10, G11, A24, and C25 provide essential functions for catalysis, possibly forming important tertiary contacts or magnesium coordination sites that are necessary for active site architecture.

L4 ANSWER 26 OF 27 MEDLINE on STN DUPLICATE 5
ACCESSION NUMBER: 92375676 MEDLINE
DOCUMENT NUMBER: PubMed ID: 1508680
TITLE: Enhancement of ribosomal frameshifting by oligonucleotides targeted to the HIV gag-pol region.
AUTHOR: Vickers T A; Ecker D J
CORPORATE SOURCE: ISIS Pharmaceuticals, Carlsbad, CA 92008.
SOURCE: Nucleic acids research, ***(1992 Aug 11)*** 20 (15)

Journal code: 0411011. ISSN: 0305-1048.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; AIDS
ENTRY MONTH: 199209
ENTRY DATE: Entered STN: 19921009
Last Updated on STN: 19970203
Entered Medline: 19920923

AB The pol gene of all retroviruses is expressed as a gag-pol fusion protein which is proteolytically processed to produce all viral enzymes. In the human immunodeficiency virus (HIV), the gag and pol genes overlap by 241 nucleotides with pol in the -1 phase with respect to gag. The gag-pol fusion is produced via a -1 ribosomal frameshifting event that brings the overlapping, out-of-phase gag and pol genes into translational phase. Frameshifting occurs at a so called 'shift site' 8-10 nucleotides upstream of a ***hairpin*** loop which may play a role in the regulation of frameshifting. We have fused this region of HIV-1 to the 5' end of the firefly luciferase reporter gene in order to quantitatively measure ribosomal frameshifting both in cells and by in vitro translation. A series of ***2*** '- ***O*** - ***methyl*** oligonucleotides was designed to specifically bind the sequences which flank the gag-pol ***hairpin*** . Ribosomal frameshifting is enhanced up to 6 fold by those oligonucleotides which bind the area just 3 to the stem. Oligonucleotides which bind 5' to the stem have no effect on frameshift efficiency. In addition, we have constructed a series of fusion genes which mimic the effect of the bound oligonucleotides with intramolecular hairpins. The results suggest that increasing ***RNA*** secondary structure downstream of the shift site increases the frequency of ribosomal frameshifting, and that this effect can be mimicked by antisense oligonucleotides.

L4 ANSWER 27 OF 27 MEDLINE on STN DUPLICATE 6
ACCESSION NUMBER: 84169564 MEDLINE
DOCUMENT NUMBER: PubMed ID: 6424099
TITLE: Xenopus laevis 18S ribosomal ***RNA*** : experimental determination of secondary structural elements, and locations of methyl groups in the secondary structure model.
AUTHOR: Atmadja J; Brimacombe R; Maden B E
SOURCE: Nucleic acids research, ***(1984 Mar 26)*** 12 (6) 2649-67.
Journal code: 0411011. ISSN: 0305-1048.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198405
ENTRY DATE: Entered STN: 19900319
Last Updated on STN: 19900319
Entered Medline: 19840511

AB 18S ribosomal ***RNA*** from X. laevis was subjected to partial digestion with ribonucleases A or T1 under a variety of conditions, and base-paired fragments were isolated. Sequence analysis of the fragments enabled five base-paired secondary structural elements of the 18S ***RNA*** to be established. Four of these elements (covering bases 221-256, 713-757, 1494-1555 and 1669-1779) confirm our previous secondary structure predictions, whereas the fifth (comprising bases 1103-1125) represents a phylogenetically conserved "switch" structure, which can also form in prokaryotic 16S ***RNA*** . The results are incorporated into a refined model of the 18S ***RNA*** secondary structure, which also includes the locations of the many methyl groups in X. laevis 18S ***RNA*** . In general the methyl groups occur in non-helical regions, at ***hairpin*** loop ends, or at helix boundaries and imperfections. One large cluster of ***2*** '- ***O*** - ***methyl*** groups occurs in a region of complicated secondary structure in the 5'-one third of the molecule.

=>